

Pulse Foods Processing Quality And Nutraceutical Applications Food Science And Technology Academic Press

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Processing and Impact on Active Components in Food - Victor R. Preedy 2014-05-27

From beef to baked goods, fish to flour, antioxidants are added to preserve the shelf life of foods and ensure consumer acceptability. These production-added components may also contribute to the overall availability of essential nutrients for intake as well as the prevention of the development of unwelcome product characteristics such as off-flavours or colours. However, there are processes that reduce the amount of naturally occurring antioxidants and awareness of that potential is just as important for those in product research and development. There is a practical need to understand not only the physiological importance of antioxidants in terms of consumer health benefit, but how they may be damaged or enhanced through the processing and packaging phases. This book presents information key to understanding how antioxidants change during production of a wide variety of food products, with a focus toward how this understanding may be translated effectively to other foods as well. Addresses how the composition of food is altered, the analytical techniques used, and the applications to other foods Presents in-chapter summary points and other translational insights into concepts, techniques, findings and approaches to processing of other foods Explores advances in analytical and methodological science within each chapter

Pulse Foods - Brijesh K. Tiwari 2011-05-11

Pulses are nutritionally diverse crops that can be successfully utilized as a food ingredient or a base for new product development. They provide a natural food grade ingredient that is rich in lysine, dietary fiber, complex carbohydrates, protein and B-vitamins suggesting that pulses can provide a variety of health benefits such as reducing heart disease and diabetes. Interest in the use of pulses and their ingredients in food formulations is growing and several factors are contributing to this drive. Pulse Foods: Processing, Quality and Nutraceutical Applications is the first book to provide up-to-date information on novel and emerging technologies for the processing of whole pulses, techniques for fractionating pulses into ingredients, their functional and nutritional properties, as well as their potential applications, so that the food industry can use this knowledge to incorporate pulses into new food products. First reference bringing together essential information on the processing technology of pulses Addresses processing challenges relevant to legume and pulse grain processors Delivers insights into the current state-of-art and emerging processing technologies In depth coverage of developments in nutraceutical applications of pulse protein and carbohydrate based foods

Innovative and Emerging Technologies in the Bio-marine Food Sector - Marco Garcia-Vaquero 2021-12-06

Innovative and Emerging Technologies in the Bio-marine Food Sector: Applications, Regulations, and Prospects presents the use of technologies and recent advances in the emerging marine food industry. Written by renowned scientists in the field, the book focuses primarily on the principles of application and the main technological developments achieved in recent years. It includes technological design, equipment and applications of these technologies in multiple processes. Extraction, preservation, microbiology and processing of food are extensively covered in the wide context of marine food products, including fish, crustaceans, seafood processing waste, seaweed, microalgae and other derived by-products. This is an interdisciplinary resource that highlights the potential of technology for multiple purposes in the marine

food industry as these technological approaches represent a future alternative to develop more efficient industrial processes. Researchers and scientists in the areas of food microbiology, food chemistry, new product development, food processing, food technology, bio-process engineers in marine based industries and scientists in marine related areas will all find this a novel resource. Presents novel innovative technologies in the Bio-marine food sector, including principles, equipment, advantages, disadvantages, and future technological prospects Explores multi-purpose uses of technologies for extraction, functional food generation, food preservation, food microbiology and food processing Provides industrial applications tailored for the marine biological market to foster new innovative applications and regulatory requirements

Future Foods - Rajeev Bhat 2021-12-04

Future Foods: Global Trends, Opportunities, and Sustainability Challenges highlights trends and sustainability challenges along the entire agri-food supply chain. Using an interdisciplinary approach, this book addresses innovations, technological developments, state-of-the-art based research, value chain analysis, and a summary of future sustainability challenges. The book is written for food scientists, researchers, engineers, producers, and policy makers and will be a welcomed reference. Provides practical solutions for overcoming recurring sustainability challenges along the entire agri-food supply chain Highlights potential industrial opportunities and supports circular economy concepts Proposes novel concepts to address various sustainability challenges that can affect and have an impact on the future generations

Current Advances for Development of Functional Foods Modulating Inflammation and Oxidative Stress - Blanca Hernandez-Ledesma 2021-12-16

Current Advances for Development of Functional Foods Modulating Inflammation and Oxidative Stress presents the nutritional and technological aspects related to the development of functional foods with anti-inflammatory and antioxidant effects. Specifically, analytical approaches for the characterization of anti-inflammatory and antioxidant properties of healthy foods and functional constituents, as well as technological strategies for the extraction of compounds and fractions from raw materials to produce anti-inflammatory and antioxidant ingredients are addressed. In addition, the molecular mechanisms by which foods and their components can modulate inflammation and their oxidative stress effects on disease prevention are explored. Finally, clinical research addressing nutritional needs in pathological subjects with inflammatory diseases are considered. Covers methods of analysis and extraction of anti-inflammatory and antioxidant compounds Offers an overview of the main anti-inflammatory and antioxidant compounds in foods Provides a guide on the mechanisms of action and health benefits of anti-inflammatory and antioxidant dietary bioactives

Pulse Chemistry and Technology - Brijesh Tiwari 2015-10-20

Like cereal, pulse processing is one of the oldest and most important of all food processing, which encompasses a diverse range of products. Pulses are widely grown throughout the world and their dietary and economic importance is globally appreciated and well recognized. Although cereal processing has several dedicated text books, no dedicated text on pulse processing is currently available for food science

and technology graduates. This book aims to address this oversight, starting with a chapter highlighting the importance of pulses, their production and consumption trends. The coverage in subsequent chapters provides details on the physical and chemical characteristics of pulses, starches, proteins and minor constituents in them and then how they are processed and used. Cooking quality, analysis and the value of the food products will all be examined with the final chapter reviewing the regulatory and legislative requirements for pulses. This book will serve as a comprehensive text book for undergraduate and postgraduate students, educators, industry personnel involved with grain processing and to some extent researchers providing an up-to-date insight into pulse science, processing and technology.

Seed Proteins - Peter R. Shewry 2012-12-06

Seeds provide more than half of the world's intake of dietary protein and energy and thus are of immense economic, cultural and nutritional importance. Proteins can account for up to 40% of the dry weight of various types of seeds, thereby making a large contribution to the nutritional quality and processing properties of seeds. It is, therefore, not surprising that seed proteins were among the first plant components to be systematically studied, some 250 years ago, and have been a major focus of research over the past 100 years. The properties and behaviour of seed proteins pervade modern life in numerous ways. For example, legume and cereal proteins are used in the production of a wide range of meat-free foods; the process of bread-making is dependent on the physical chemical properties of wheat seed proteins; and in developed, as well as developing, countries, nutritional deficiencies among vegetarian diets are avoided through balancing legume and cereal seeds as sources of dietary proteins. Understanding seed proteins, in order to improve their composition and properties and to increase their concentrations, will thus continue to be an important research objective for the future. The present volume represents the culmination of a long-discussed plan of the editors, to bring together the best international authorities in order to compile a definitive monograph on biological, biochemical, molecular and genetic aspects of seed proteins.

The Beans and the Peas - Aditya Pratap 2020-11-22

The Beans and the Peas: From Orphan to Mainstream Crops presents a comprehensive literature resource on the most important food legume crops previously known as "orphans," but which are increasingly becoming mainstream as their production opportunities have been improved through genetic improvement and biotechnology, and their role as an important nutrient source gains urgency. This book focuses on 12 important food legumes and discusses all relevant aspects on their economic importance, crop statistics, botany, and their general description. It also provides exhaustive information on plant genetic resources and their use, genetic improvement, resistance to biotic and abiotic stresses, improved varieties, agronomy, seed system, and use of information and communication tools in each individual food legume. Development of innovative biotechnological tools, genetic transformation, and the genome sequencing information has also been covered in each chapter providing the readers with state-of-the-art information on pulses. All chapters have been supported by relevant figures, illustrations, and tables, which make the contents accessible and easy to understand. Each of the chapters has been authored by globally known scientists/researchers presenting up-to-date information on various aspects of food legumes. This book provides a current and comprehensive treatise to the readers and will be tremendously helpful in furthering their academic and research pursuits. • Provides a single-volume resource on the most important food legumes having a prominent role in food and nutritional security • Written by experts with a focus on providing foundational information for further research and development • Presents both theoretical aspects and application-based case studies • Supported by relevant figures, illustrations, and tables

Cereals and Pulses - Liangli L. Yu 2012-05-01

Cereal and pulse crops are staple foods that provide essential nutrients to many populations of the world. Traditionally, whole grains were consumed but most current foods are derived from refined fractions of cereal and pulse crops. Consumption of processed or refined products may reduce the health benefits of food. In wheat-based processed foods, for example, the removed 40% of the grain (mainly the bran and the germ of the wheat grain) contains the majority of the health beneficial components. These components, particularly non-essential phytochemicals such as carotenoids, polyphenols, phytosterols/ stanols, and dietary fibers, have been shown to reduce the risk of major chronic diseases of humans, such as cancer,

cardiovascular diseases, and Parkinson's disease. Such bioactives are therefore good candidates for ingredients of nutraceuticals and functional foods. There are many factors that can affect the bioactive content of cereal and pulse-based food ingredients, including genetics, growing and storage conditions, post-harvest treatments, food formulation and processing. All of these factors ultimately affect human health and wellness. Bioavailability is also important for these compounds for exerting their protective roles. Cereals and Pulses: Nutraceutical Properties and Health Benefits provides a summary of current research findings related to phytochemical composition and properties of cereal and pulse crops. The nutraceutical properties of each major cereal and pulse are discussed. Coverage of cereals and pulse crops includes barley, oats, rice, rye, corn, adlay, wheat, buckwheat, psyllium, sorghum, millet, common beans, field peas, faba beans, chickpea, lentil and soybeans. Chapters for each crop discuss methods to improve crop utilization, nutraceutical components and properties, bioactive compositions, antioxidant properties, beneficial health effects, disease prevention activities, and areas for future research. Also included are two chapters that examine the beneficial health properties of dietary fibers and antioxidants. Edited and written by an international team of respected researchers, this book is a reference guide for scientists working in food ingredients, food product research and development, functional foods and nutraceuticals, crop breeding and genetics, human nutrition, post-harvest treatment and processing of cereal grains and pulses. It will enable them to effect value-added food innovation for health promotion and disease risk reduction.

Valorization of Agro-Industrial Byproducts - Anil Kumar Anal 2022-09-02

This book covers sustainable approaches for industrial transformation pertaining to valorization of agro-industrial byproducts. Divided into four sections, it starts with information about the agro/food industry and its byproducts, including their characterization, followed by different green technologies (principle, process strategies and extraction of bioactive compounds) applied for the management of agro industry byproducts. It further explains biotechnological interventions involved in the value addition of these byproducts. Various regulatory and environmental concerns related to by-product management along with biorefinery concept and future strategies are provided as well. Features: Provides extensive coverage of agro-industrial by products and their environmental impact. Details production of value-added products from agro-industrial waste. Describes environmental legislations and future strategies. Presents multidisciplinary approaches from fundamental to applied and addresses the biorefinery and circular economy. Includes innovative approaches and future strategies for management of agro-industrial waste. This book is aimed at researchers, graduate students and professionals in food science/food engineering, bioprocessing/biofuels/bioproducts/biochemicals and agriculture, bioeconomy, food waste processing, post-harvest processing, and waste management.

Handbook of Cereals, Pulses, Roots, and Tubers - Sneh Punia 2021-10-11

Cereals, pulses, roots, and tubers are major food sources worldwide and make a substantial contribution to the intake of carbohydrates, protein, and fiber, as well as vitamin E and B. The Handbook of Cereals, Pulses, Roots, and Tubers: Functionality, Health Benefits, and Applications provides information about commercial cereals, pulses, and their nutritional profile, as well as health benefits and their food and non-food applications. Split into four sections, this handbook covers all the recent research about the related crops and outlines matters needing further research in the field of agriculture sciences. Both qualitative and quantitative analysis of nutrients and bio-actives, and their beneficial effects on human health, are highlighted in this book. The conclusions drawn and future perspectives proposed in each chapter will also help researchers to take more focused approaches. FEATURES Covers the full spectrum of cereals, pulses, roots, and tubers grain production, processing, and their use for foods, feeds, fuels, and industrial materials, and other uses Contains the latest information from grain science professionals and food technologists alike Provides comprehensive knowledge on the nutritional and non-nutritional aspects of cereals, pulses, and tubers Discusses the latest development in modification of native starch Provides information in enhancing shelf life and its utilization in phytochemical rich product development The result of various well-versed researchers across the globe sharing their knowledge and experience, this handbook will be a valuable resource for students, researchers, and industrial practitioners who wish to enhance their knowledge and insights on cereals, pulses, roots, and tubers.

Sensory Evaluation Practices - Herbert Stone 2012-08-02

1. Introduction to sensory evaluation -- 2. The organization and operation of a sensory evaluation program -- 3. Measurement -- 4. Test strategy and the design of experiments -- 5. Discrimination testing -- 6. Descriptive analysis -- 7. Affective testing -- 8. Strategic applications -- 9. Epilogue.

Food Wastes and By-products - Rocio Campos-Vega 2020-02-03

A complete guide to the evolving methods by which we may recover by-products and significantly reduce food waste. Across the globe, one third of cereals and almost half of all fruits and vegetables go to waste. The cost of such waste – both to economies and to the environment – is a serious and increasing concern within the food industry. If we are to overcome this crisis and move towards a sustainable future, we must do everything possible to utilize innovative new methods of extracting and processing valuable by-products of all kinds. *Food Wastes and By-products* represents a complete primer to this important and complex process. Edited and written by leading researchers, the text provides essential information on the supply of waste and its composition, identifies foods rich in valuable bioactive compounds, and explores revolutionary methods for creating by-products from fruit, vegetable, and seed waste. Other chapters discuss the nutraceutical properties of value-added by-products and their uses in the manufacturing of dietary fibers, food flavors, supplements, pectin, and more. This book: Explains how reconstituted by-products can best be used to radically reduce food waste. Discusses the potential nutraceutical assets of recovered food waste. Covers a broad range of by-product sources, such as mangos, cacao, flaxseed, and spent coffee grounds. Describes novel extraction processes and the emerging use of nanotechnology. A significant contribution to the field, *Food Wastes and By-products* is a timely and essential resource for food industry professionals, government agencies and NGOs involved in nutrition, agriculture, and food production, and university instructors and students in related areas.

Innovations in Food Packaging - Jung H. Han 2013-10-03

This new edition of *Innovations in Food Packaging* ensures that readers have the most current information on food packaging options, including active packaging, intelligent packaging, edible/biodegradable packaging, nanocomposites and other options for package design. Today's packaging not only contains and protects food, but where possible and appropriate, it can assist in inventory control, consumer education, increased market availability and shelf life, and even in ensuring the safety of the food product. As nanotechnology and other technologies have developed, new and important options for maximizing the role of packaging have emerged. This book specifically examines the whole range of modern packaging options. It covers edible packaging based on carbohydrates, proteins, and lipids, antioxidative and antimicrobial packaging, and chemistry issues of food and food packaging, such as plasticization and polymer morphology. Professionals involved in food safety and shelf life, as well as researchers and students of food science, will find great value in this complete and updated overview. New to this edition: Over 60% updated content – including nine completely new chapters – with the latest developments in technology, processes and materials. Now includes bioplastics, biopolymers, nanoparticles, and eco-design of packaging.

Food Processing Waste and Utilization - Sanju Bala Dhull 2022-10-27

Because of its high Chemical Oxygen Demand (COD) and sheer volume, waste from food processing has significant potential to pollute land, water, and air. Both environmentally and economically, it is important to properly treat food processing wastes including the recovery of valuable products. *Food Processing Waste and Utilization: Tackling Pollution and Enhancing Product Recovery* discusses possible solutions to tackle food waste generation and its further utilization. It addresses process engineering economics, microbiology of waste recycling, biochemical and nutritional aspects of food waste processing. The book includes detailed guidance and case studies about utilization/valorization of food waste. Key Features: Covers modern as well as conventional methods of food industry waste utilization. Discusses possible solutions to tackle food waste generation and its further utilization. Addresses socioeconomic considerations, environmental concerns and discusses regulations related to food processing waste. Authors of this book are well-recognized researchers in their specific fields who have made important contributions to the knowledge of utilization of different food industry wastes at different levels. This book covers a wide range of breakthroughs in waste management, and is of value for students, research scholars, postdoctoral fellows and faculties pursuing careers in fields such as Bioprocess Technology, Food Technology, Food Science and Technology, Food Biotechnology, and Fermentation and Bioengineering.

Functional Food - María Chávarri Hueda 2017-08-02

In recent years, the concern of society about how food influences the health status of people has increased. Consumers are increasingly aware that food can prevent the development of certain diseases, so in recent years, the food industry is developing new, healthier products taking into account aspects such as trans fats, lower caloric intake, less salt, etc. However, there are bioactive compounds that can improve the beneficial effect of these foods and go beyond the nutritional value. This book provides information on impact of bioactive ingredients (vitamins, antioxidants, compounds of the pulses, etc.) on nutrition through food, how functional foods can prevent disease, and tools to evaluate the effects of bioactive ingredients, functional foods, and diet.

Food Industry Wastes - Maria Kosseva 2013-01-31

Food Industry Wastes: Assessment and Recuperation of Commodities presents emerging techniques and opportunities for the treatment of food wastes, the reduction of water footprint, and creating sustainable food systems. Written by a team of experts from around the world, this book provides a guide for implementing bioprocessing techniques. It also helps researchers develop new options for the recuperation of these wastes for community benefit. More than 34 million tons of food waste was generated in the United States in 2009, at a cost of approximately \$43 billion. And while less than three percent of that waste was recovered and recycled, there is growing interest and development in recovering and recycling food waste. These processes have the potential not only to reduce greenhouse gases, but to provide energy and resources for other purposes. This book examines these topics in detail, starting with sources, characterization and composition of food wastes, and development of green production strategies. The book then turns to treatment techniques such as solid-state fermentation and anaerobic digestion of solid food waste for biogas and fertilizer. A deep section on innovative biocatalysts and bioreactors follows, encompassing hydrogen generation and thermophilic aerobic bioprocessing technologies. Rounding out the volume are extensive sections on water footprints, including electricity generation from microbial fuel cells (MFCs), and life cycle assessments. Food waste is an area of focus for a wide range of related industries from food science to energy and engineering. Outlines the development of green product strategies. International authoring team represents the leading edge in research and development. Highlights leading trends of current research as well as future opportunities for reusing food waste.

Challenges and Potential Solutions in Gluten Free Product Development - Navneet Singh Deora 2021-12-04

This work provides researchers with a thorough overview of all aspects related to the development of gluten-free food products. In summarizing and offering critical reviews of published works and focusing on current advances and technologies in gluten free product development, this book covers all of the important subjects related to this increasingly important aspect of the food industry. Important case studies in gluten-free breadmaking and alternative proteins are presented, making this a rich and singular source for food manufacturers and scientists seeking practical knowledge on the challenges and solutions involved in the development of gluten-free foods. *Challenges and Potential Solutions in Gluten Free Product Development* covers the latest advances and strategies for gluten-free diets including the important nutritional factors involved. Traditional and alternative approaches for the development of gluten-free dough, including starch applications and microbial fermentations, are extensively covered. Alternative proteins including those from vegetables, cereals, legumes and eggs are presented. Novel approaches for gluten-free breadmaking such as aeration strategies, prebiotics, hydrocolloids and nutritional enhancements are also covered in depth. With further chapters dedicated to regulatory aspects, gluten detection methods and the global market, this book presents full and up-to-date coverage of the development and manufacture of gluten-free products.

Risk Management for Food Allergy - Charlotte Madsen 2013-11-13

Risk Management for Food Allergy is developed by a team of scientists and industry professionals who understand the importance of allergen risk assessment and presents practical, real-world guidance for food manufacturers. With more than 12 million Americans suffering from food allergies and little indication of what is causing that number to continue to grow, food producers, packagers and distributors need to appropriately process, label and deliver their products to ensure the safety of customers with allergic

conditions. By identifying risk factors during processing as well as determining appropriate "safe" thresholds of ingredients, the food industry must take increasingly proactive steps to avoid direct or cross-contamination as well as ensuring that their products are appropriately labeled and identified for those at risk. This book covers a range of critical topics in this area, including the epidemiology of food allergy, assessing allergen thresholds and risk, specifics of gluten management and celiac disease, and much more. The practical advice on factory risk management, catering industry practices, allergen detection and measurement and regulatory controls is key for food industry professionals as well as regulators in government and other public bodies. Science-based insights into the potential risks of food allergens Focused section on determining thresholds Practical guidance on food allergen risk management, including case studies

Legumes - Maria Ángeles Martín-Cabrejas 2019-01-02

Legumes have high potential for improving the nutritional quality of foods, but limited data on their bioactive compounds exists. Results of clinical and epidemiological studies suggest that natural antioxidants can protect us against oxidative stress that is closely associated with cancer and cardiovascular disease. Legumes are a valuable source of bioactive compounds such as phenolic compounds, peptides and non-nutritional factors. They are rich in several important micronutrients, including potassium, magnesium, folate, iron, and zinc, and are an important source of protein in vegetarian diets. They are among the only plant foods that provide significant amounts of the amino acid, lysine. Commonly consumed legumes are also rich in total and soluble fibre as well as in resistant starch. This book provides a comprehensive overview of the antioxidant activity and health aspects of legumes. The international spread of contributors will describe the key factors that influence consumer acceptance of legumes in the diet, as well as the known functional properties of legumes and legume based food products. It will serve as an excellent and up-to-date reference for food scientists, food chemists, researchers in human nutrition, dietetics and the chemistry of natural compounds.

Milk Proteins - Mike Boland 2014-07-08

Understanding of the interactions of milk proteins in complex food systems continues to progress, resulting in specialized milk-protein based applications in functional foods, and in protein ingredients for specific health applications. Milk Proteins is the first and only presentation of the entire dairy food chain - from the source to the nutritional aspects affecting the consumer. With focus on the molecular structures and interactions of milk proteins in various processing methods, Milk Proteins presents a comprehensive overview of the biology and chemistry of milk, as well as featuring the latest science and developments. Significant insight into the use of milk proteins from an industry viewpoint provides valuable application-based information. Those working with food and nutritional research and product development will find this book useful. 20% new chapter content — full revision throughout New chapters address: role of milk proteins in human health; aspects of digestion and absorption of milk proteins in the GIT; consumer demand and future trends in milk proteins; and world supply of proteins with a focus on dairy proteins Internationally recognized authors and editors bring academic and industrial insights to this important topic

Dry Beans and Pulses - Muhammad Siddiq 2022-01-31

Dry Beans and Pulses The second edition of the most complete and authoritative reference on dry beans production, processing, and nutrition available Since the first edition of Dry Beans and Pulses: Production, Processing, and Nutrition was published in 2012, the popularity of pulse crops as sustainable, nutritionally-rich food ingredients for alternate meat and other food products has increased significantly beyond traditional utilization. Retaining its distinctive value-chain approach to the subject, the new edition is fully revised to provide up-to-date coverage of breeding, composition, quality, nutritional profiles, postharvest and processing technologies, food safety and security, significance to human health, and more. A team of more than fifty contributors review recent research, consumer trends, new products, and food security issues in dry beans processing and value-added practices. New chapters address Hard-to-cook phenomenon and other storage-induced quality defects, quality assessment of raw and processed legumes using innovative technologies, utilization of dry beans and pulses as ingredients in diverse food products, and the production, processing, and nutritional profile of Faba beans and chickpeas and lentils. Covering both

traditional and non-traditional bean classes, this comprehensive volume: Features new topics, expanded discussion, updated references, and additional figures and tables throughout Provides in-depth information on key aspects of production technologies, value-added processing, and Culinology® Examines global production and consumption, packaging and distribution, and nutrient bioavailability of bioactive compounds Highlights worldwide efforts to improve the quality and utilization of dry beans and pulses Discusses emerging trends and new applications of antioxidant properties of dry beans as functional foods Features chapters written by experts in disciplines such as crop science, horticulture, food science and technology, food biochemistry and engineering, and nutritional and environmental sciences Dry Beans and Pulses: Production, Processing, and Nutrition, Second Edition remains required reading for food scientists, nutritionists, agronomists, researchers, food processing specialists, and food security experts, food engineers and chemists involved in dry beans processing and value-added technologies.

Secondary Metabolites - Ramasamy Vijayakumar 2022-08-17

This book provides an overview of secondary metabolites in three sections: "Introduction", "Secondary Metabolites: General Reviews and Biotechnological Interventions" and "Plant Secondary Metabolites." It discusses the antimicrobial, anticancer, and antioxidant activities of secondary metabolites, biotechnological interventions in the production and research of secondary metabolites, and the secondary metabolites of plants.

Food Processing - Stephanie Clark 2014-04-03

Food Processing: Principles and Applications second edition is the fully revised new edition of this best-selling food technology title. Advances in food processing continue to take place as food scientists and food engineers adapt to the challenges imposed by emerging pathogens, environmental concerns, shelf life, quality and safety, as well as the dietary needs and demands of humans. In addition to covering food processing principles that have long been essential to food quality and safety, this edition of Food Processing: Principles and Applications, unlike the former edition, covers microbial/enzyme inactivation kinetics, alternative food processing technologies as well as environmental and sustainability issues currently facing the food processing industry. The book is divided into two sections, the first focusing on principles of food processing and handling, and the second on processing technologies and applications. As a hands-on guide to the essential processing principles and their applications, covering the theoretical and applied aspects of food processing in one accessible volume, this book is a valuable tool for food industry professionals across all manufacturing sectors, and serves as a relevant primary or supplemental text for students of food science.

Pulse Foods - Brijesh K. Tiwari 2020-12-07

Pulse Foods: Processing, Quality and Nutraceutical Applications, Second Edition, provides up-to-date information on emerging technologies for the processing of whole pulses, techniques for fractionating pulses into ingredients, their functional and nutritional properties, as well as their potential applications, so that the food industry can incorporate pulses into new food products. Since the first edition, significant developments have occurred in various aspects of pulse, pulse chemistry, processing and applications. This second edition provides thorough and authoritative coverage of pulse quality, technology and nutraceutical applications. Pulse Foods: Processing, Quality and Nutraceutical Applications, Second Edition, will continue to be an important resource for academics, students, researchers and industry professionals in providing essential details on various aspects of pulse foods. Fully revised and updated with new chapters on nutritional and health properties, storage and pre-processing, extraction technologies and sustainability topics Addresses processing challenges relevant to legume and pulse grain processors Delivers insights into the current state-of-art and emerging processing technologies In depth coverage of developments in nutraceutical applications of pulse protein and carbohydrate based foods

Polymer Science - Faris Yilmaz 2013-01-23

During the last ten to fifteen years the developments in polymer science has been striking attention and undergone important changes. From rather specialized subject intended for engineers interested in certain definite fields, it has developed into one of the fundamental disciplines common to several branches of engineering and science. To serve this purpose, the subject materials have been prepared to treat a comprehensive aspects of polymer science. Following this trend, a number of rigorous books have

discussed different types of polymers with great precision and elegance and at relatively high levels of abstraction, but none is complementary. A position midway between the older, traditional approach in engineering and the recent, somewhat formal expositions seems to be evolving.

Pulse Foods - Brijesh K. Tiwari 2020-12-01

Pulse Foods: Processing, Quality and Nutraceutical Applications, Second Edition, provides up-to-date information on emerging technologies for the processing of whole pulses, techniques for fractionating pulses into ingredients, their functional and nutritional properties, as well as their potential applications, so that the food industry can incorporate pulses into new food products. Since the first edition, significant developments have occurred in various aspects of pulse, pulse chemistry, processing and applications. This second edition provides thorough and authoritative coverage of pulse quality, technology and nutraceutical applications. *Pulse Foods: Processing, Quality and Nutraceutical Applications, Second Edition*, will continue to be an important resource for academics, students, researchers and industry professionals in providing essential details on various aspects of pulse foods. Fully revised and updated with new chapters on nutritional and health properties, storage and pre-processing, extraction technologies and sustainability topics Addresses processing challenges relevant to legume and pulse grain processors Delivers insights into the current state-of-art and emerging processing technologies In depth coverage of developments in nutraceutical applications of pulse protein and carbohydrate based foods

Health Benefits of Pulses - Wendy J. Dahl 2019-04-24

This book provides a global overview of pulse intake and future trends from a variety of perspectives. Pulses, which include dried beans, peas and lentils, are second only to grains as a source of food for the world's population. Contributors from around the globe explore a number of issues related to this food group, including their impact on global health and sustainability, the relationship between pulse intake and chronic disease, and their nutritional and gastrointestinal benefits. The primary purpose of the volume is to explore the nutritional and health benefits of pulses (starchy legumes) as a sustainable food source. Initial chapters focus on the role of pulses in complementary feeding and in the prevention of malnutrition in infants and children in the developing nations of Africa. Authors also consider the feasibility and sustainable properties of pulses as a staple food for these regions. Subsequent chapters focus on the association between pulse intake and chronic disease risk reduction. Contributors identify the unique contributions of pulses, versus legumes as a whole, to chronic disease risk and management. Additional chapters provide a comprehensive review of the nutrient contents of pulses, their bioavailability, and the nutritional impact of pulse consumption. The book also explores the phytochemicals contained in pulses from two perspectives, the traditional perspective of risk (e.g. anti-nutrients) and a nutraceutical perspective, focused on the novel benefits of pulse components (e.g. antioxidants). The editor has designed the book for students, faculty, and research scientists, as well as practicing dietitians. Members of the pulse industry, grower associations, and government agencies also will find the information relevant to their work, as will those in the private sector employed by food companies with an interest in pulse ingredients.

Soft Chemistry and Food Fermentation - Alexandru Mihai Grumezescu 2017-07-18

Soft Chemistry and Food Fermentation, Volume Three, the latest release in the Handbook of Food Bioengineering series is a practical resource that provides significant knowledge and new perspectives in food processing and preservation, promoting renewable resources by applying soft ecological techniques (i.e. soft chemistry). Fermentation represents a simple and very efficient way to preserve food in developing countries where other methods, depending on specialized instruments, are not available. Through processes of soft chemistry and fermentation, food ingredients can be produced with improved properties (such as probiotics) able to promote health. Includes the most recent scientific progress with proven biological, physical and chemical applications of the food engineering process to understand fermentation Presents novel opportunities and ideas for developing and improving technologies in the food industry that are useful to researchers in food bioengineering Provides eco-friendly approaches towards components, materials and technologies developed for improvements in food quality and stability Includes valuable information useful to a wide audience interested in food chemistry and the bioremediation of new foods

The global economy of pulses - Food and Agriculture Organization of the United Nations 2019-10-18

The production, trade and consumption of pulses have seen substantial growth over the last fifteen years.

This report examines the trends and patterns of this growth, and the factors that explain these for different kinds of pulses. The report presents an analysis of trends of consumption of pulses in different regions of the world and discusses the role that pulses can play in human nutrition. The report presents an analysis of the dynamics of growth of major pulses in different pulse-producing countries of the world. It describes the increasingly important role of trade in the global economy of pulses and presents an analysis of changing patterns of trade. The report argues that there is a pressing need to close the large gap between potential and actual yields, particularly on smallholder farms in South Asia and sub-Saharan Africa, by increased adoption of improved varieties and modern agronomic practices in all developing countries. This in turn requires a major thrust in agricultural research and extension, improving credit availability, and public investment directed at pulse production. The report discusses future prospects and policy imperatives for sustaining the growth of pulse production.

Advances in Cereals Processing Technologies - Gopal Kumar Sharma 2021-12-23

The present book presents its reader with comprehensive knowledge related to cereals processing. It is imperative to have sound knowledge of food laws and regulations with an Indian perspective as these play a pivotal role in commercializing food products as well as fresh produce, which are aptly covered in this book. It includes recent trends in technology of cereals based products, technological updates in legumes and pulses based convenience/processed foods, various aspects of evolution of bakery and confectionery technology and technological evaluation of milling. Since age's process of fermentation was employed for preserving the cereals based food by using general and specified micro flora and micro fauna, the science and technology involved is well explained in the chapter titled 'Fermented Food Based on Cereal and Pulses.' The most important quality attributes related to cereals processing are rheological and thermal changes which occur when extrinsic factors such as moisture and temperature are ebb and flow. This subject was sensibly covered under 'Rheological and Thermal Changes Occurring During Processing.' Sugarcane and the sugar industry have the largest contribution to the industrial development. Various unit operations and technology involved are explained as recent updates in sugar, honey, jaggery and salt processing. Shelf life stability of the products with respect to various chemical parameters attributed to the oxidative changes in processed foods is also aptly covered. Note: T&F does not sell or distribute the hardback in India, Pakistan, Nepal, Bhutan, Bangladesh and Sri Lanka. This title is co-published with NIPA. *Pulses and Pulse Ingredients* - Heather Hill 2018-06-15

Pulses and Pulse Ingredients: Processing, Technology and Product Development is a complete and comprehensive overview of pulses, with coverage from raw ingredient to developed products. Divided into two main sections, the book opens with coverage of the processing of pulses. It begins at ingredient processing, with a focus on milling and fractionation, also covering the composition of pulse ingredients and pulse and pulse ingredient testing. In addition, readers will find sections on raw ingredients that can be derived from pulses, with separate chapters covering whole pulses, pulse flours, starches, proteins and fibers. Final sections cover technology, challenges and potential resolutions. As pulses are one of the hottest topics in cereal and grain science, this book, written by industrial researchers working at the cutting-edge of pulses and pulse ingredients, brings practical applied knowledge on this rapidly expanding field. It is essential reading for cereal and grain science academics and postgraduate students and industrial product developers in cereal and grain companies. Contains coverage of pulse processing, testing and quality insurance Provides extensive coverage of the raw ingredients derived from pulses Includes detailed information about the products that can be developed from pulses Provides coverage of equipment and the role of technology in pulse processing

Dry Beans and Pulses - Muhammad Siddiq 2012-08-29

The common beans and pulses are diverse food resources of high nutritional value (protein, energy, fiber and vitamins and minerals) with broad social acceptance. These legume crops demonstrate global adaptability, genotypic and phenotypic diversity, and multiple means of preparation and dietary use. Beans and pulses are produced in regions as diverse as Latin America, Africa, Asia, and North America, and on a scale similar to some other crops, such as wheat, corn, rice and soybeans. Numerous factors influence utilization, including bean type and cultivar selection, cropping environment and systems, storage conditions and handling infrastructure, processing and final product preparation. Nutrient content and bio-

availability are dramatically influenced by these conditions. In recent years, beans and pulses have been cited for imparting specific positive health potentiating responses, such as hypocholesteremic response, mitigation of diabetes and colonic cancer, and weight control. Enhanced dry bean utilization focused on improved dietary health is an opportunity within both subsistent and developed populations. This book provides a contemporary source of information that brings together current knowledge and practices in the value chain of beans/pulses production, processing, and nutrition. It provides in-depth coverage of a wide variety of pertinent topics including: breeding, postharvest technologies, composition, processing technologies, food safety, quality, nutrition, and significance in human health. An experienced team of over 25 contributors from North America, Asia, and Africa has written 15 chapters, divided into three sections: Overview, production and postharvest technologies of beans and pulses Composition, value-added processing and quality Culinology, nutrition, and significance in human health Contributors come from a field of diverse disciplines, including crop sciences, food science and technology, food biochemistry, food engineering, nutritional sciences, and culinology. Dry Beans and Pulses Production, Processing and Nutrition is an essential resource for scientists, processors and nutritionists, whatever the work setting.

Pulses - A. Manickavasagan 2020-05-25

World health authorities recommend people maximize their protein intake through vegetable sources (such as pulses), and reduce protein intake from animal sources. Increasing vegetable protein intake has been shown to be positively associated with the reduction of both cardiovascular-disease-related mortality and all-cause mortality. Pulse consumption has been shown to improve satiety and metabolism of glucose and lipids, due to their high protein and fiber content, which makes their consumption ideal for preventing and managing obesity. In recent years, there has been increasing demand for pulses and pulse-based products in developed countries. Several large-scale collaborative research projects on pulse products have been initiated by government agencies. Similarly, established multinational food companies have developed pulse product units. Pulses: Processing and Product Development fulfills the need for a comprehensive book on processing and products of pulses. The book addresses a specific pulse with each chapter to meet a wide range of audiences from undergraduate students to consumers.

Encyclopedia of Food Security and Sustainability - 2018-11-08

The Encyclopedia of Food Security and Sustainability covers the hottest topics in the science of food sustainability, providing a synopsis of the path society is on to secure food for a growing population. It investigates the focal issue of sustainable food production in relation to the effects of global change on food resources, biodiversity and global food security. This collection of methodological approaches and knowledge derived from expert authors around the world offers the research community, food industry, scientists and students with the knowledge to relate to, and report on, the novel challenges of food production and sustainability. This comprehensive encyclopedia will act as a platform to show how an interdisciplinary approach and closer collaboration between the scientific and industrial communities is necessary to strengthen our existing capacity to generate and share research data. Offers readers a 'one-stop' resource on the topic of food security and sustainability Contains articles split into sections based on the various dimensions of Food Security and Food Sustainability Written by academics and practitioners from various fields and regions with a "farm to fork understanding Includes concise and accessible chapters, providing an authoritative introduction for non-specialists and readers from undergraduate level upwards, as well as up-to-date foundational content for those familiar with the field

Food Waste Recovery - Charis M. Galanakis 2020-12-01

Food Waste Recovery: Processing Technologies, Industrial Techniques, and Applications, Second Edition provides information on safe and economical strategies for the recapture of value compounds from food wastes while also exploring their re-utilization in fortifying foods and as ingredients in commercial products. Sections discuss the exploration of management options, different sources, the Universal Recovery Strategy, conventional and emerging technologies, and commercialization issues that target applications of recovered compounds in the food and cosmetics industries. This book is a valuable resource for food scientists, technologists, engineers, chemists, product developers, researchers, academics and professionals working in the food industry. Covers food waste management within the food industry by developing recovery strategies Provides coverage of processing technologies and industrial techniques for

the recovery of valuable compounds from food processing by-products Explores the different applications of compounds recovered from food processing using three approaches: targeting by-products, targeting ingredients, and targeting bioactive applications

Encyclopedia of Food Chemistry - 2018-11-22

Encyclopedia of Food Chemistry is the ideal primer for food scientists, researchers, students and young professionals who want to acquaint themselves with food chemistry. Well-organized, clearly written, and abundantly referenced, the book provides a foundation for readers to understand the principles, concepts, and techniques used in food chemistry applications. Articles are written by international experts and cover a wide range of topics, including food chemistry, food components and their interactions, properties (flavor, aroma, texture) the structure of food, functional foods, processing, storage, nanoparticles for food use, antioxidants, the Maillard and Strecker reactions, process derived contaminants, and the detection of economically-motivated food adulteration. The encyclopedia will provide readers with an introduction to specific topics within the wider context of food chemistry, as well as helping them identify the links between the various sub-topics. Offers readers a comprehensive understanding of food chemistry and the various connections between the sub-topics Provides an authoritative introduction for non-specialists and readers from undergraduate levels and upwards Meticulously organized, with articles structured logically based on the various elements of food chemistry

Current Strategies to Improve the Nutritional and Physical Quality of Baked Goods - Mario Martinez Martinez 2020-03-18

The lifestyle of humans is rapidly changing, and, correspondingly, their needs and the current and future megatrends of the food market. It is worth mentioning (1) the preference for natural, simple, and flexible diets that drive the further expansion of plant-focused formulations, (2) the focus on food sustainability (food waste reduction), and (3) the interest in healthy eating as the basis for good health. The hectic routine and rapid urbanization in developed and developing regions, respectively, have shifted consumer preferences toward bread and baked foods, which, interestingly, are often high in sugars and are categorized as having a high glycemic index. Therefore, it is of major importance to address the technological challenges of manufacturing baked goods with high physical and sensory quality that result in positive metabolic responses. This Special Issue seeks to provide fundamental understanding in this area and novel strategies to improve the nutritional properties of baked goods, including a decrease in starch bioaccessibility, sugar reduction, increase in fiber and/or protein content, and the improvement of phytochemical bioactivity. This Special Issue will also cover studies on the physical and sensory improvements of baked goods that may provide a mechanistic understanding to minimize the loss of quality after the incorporation of nutritional-improving ingredients, such as edible byproducts, proteins, or fibers. Last but not least, studies focused on the reduction of additives (clean label) or fat and on the use of sourdough to improve the sensory properties of baked goods will also be included.

Legumes as Food Ingredient - Alfonso Clemente 2021-05-07

Legume crops provide a significant sources of plant-based proteins for humans. Grain legumes present outstanding nutritional and nutraceutical properties as sources of bioactive components with benefits in human health, while they are affordable food that contributes to achieving future food and feed security. Furthermore, they are major ingredients in the Mediterranean diet, playing a vital role in developing countries. Global food security requires a major re-focusing of plant sciences, crop improvement and production agronomy towards grain legumes (pulse crops) over coming decades, with intensive research to identify cultivars with improved grain characteristics, helping to develop novel legume-derived products (foods) adapted to today consumer preference. In this context, studies dealing with legume processing impact such as soaking, boiling, microwave cooking, germination, and fermentation among others, in their nutritional and anti-nutritional (i.e., food allergy) properties are of great interest in these future food developments. This Research Topic aims to bring together a collection of studies for a better understanding of current research in legume seed compounds functional properties to provide an updated and global vision of the importance of legumes in human health.

Advances in Agri-Food Biotechnology - Tilak Raj Sharma 2020-08-31

This book presents biotechnological advances and approaches to improving the nutritional value of agri-

foods. The respective chapters explore how biotechnology is being used to enhance food production, nutritional quality, food safety and food packaging, and to address postharvest issues. Written and prepared by eminent scientists working in the field of food biotechnology, the book offers authentic,

reliable and detailed information on technological advances, fundamental principles, and the applications of recent innovations. Accordingly, it offers a valuable guide for researchers, as well as undergraduate and graduate students in the fields of biotechnology, agriculture and food technology.